#### Order of the Start.

time) the flagship rose lightly off the water, as if ashamed of her bad be- sult should they recur at sea. havior, and two minutes later the came the One, the veteran of the fleet—the original NC ship—her wings, even in the sunlight, for they war gray as became a veteran, rather than a creamy white like those of her sisters. In the forward cockpit sat Lieut.-Commander "Pat" Bellinger, also a veteran, the first Amerflyer to sall over enemy lines, an exploit he performed when the Unit-

The planes all hopped off the water near the narrows of the bay, passing The planes all hopped off the water near the narrows of the bay, passing over the hump of land called Powell's Head a hundred feet above it. Manœu-wring for a moment over wide Mutten Bay they took a V formation, for the seaplanes are duly commissioned. seaplanes are duly commissioned ships of the United States Navy and will proceed to the Azores in naval tips of the wings and the One followe

#### Disappear Into the Evening.

once clear of the surrounding land the planes speeded up a bit as if relieved to put the land behind them. This may have been, however, because navy hands were on the throttles. The heavily laden seaplanes gradually climbed upward away from the water until they were at 600 feet and gradually nearing the great mass of land, Cape Race, which would be the last sight of land until the little island of Corvo, six miles long and three miles wide, 1,200 miles around the curve of the earth, is sighted. They faded into eastern horizon as a snowflake

melts into water.

It was not until the seaplanes had isappeared on their hazardous flight-flight which may mean a new epoch a serial navigation or merely disaster to three good ships somewhere in the waste Atlantic—it was not until the eastern sky was blank that those on shore realized how madly they had been cheering—both the undemonstrative Newfoundlanders, whose sympathies should have been with the British flyers should have been with the British nyers further north, still waiting for the senith of propitious weather, and the officers and gobs on the "mother" ships which had lost their children.

#### Kept in Touch by Wireless.

It takes strong throats to vie with power engines—Liberty engines—but those on shore had such throats. It meant nothing to them that the voyagers themselves could hear nothing save the errific thunder of their engines. It was heir only way of wishing the aeronauts bod-by and demonstrating their ad-diration for the men who were heading nto a night above an unseen ocean in craft whose very life in the air de-pender upon the unfailing beat of en-gines which though the best man has are fallible after hours of racking

Although out of sight, the voyagers are not out of hearing of their fellows, for each ship has on it a wireless which can talk with ships for 200 miles. They One of these fast little vessels is staioned every fifty miles of the journeya very short distance on the map, but a mighty stretch in the middle of the in a frail airplane feeling its way along among strange winds with the aid of a compass and a radio direction finder which depends upon the situa-tion of stations many hundreds of miles away to indicate its own position.

## Crews Carefully Chosen.

The men who set out on the journey all picked men, chosen for a dozen qualities—pluck, endurance, physical strength, knowledge of sea and air and technical training—are of the regular navy, the reserve, which stepped from civilian ranks when the war call came, and the Coast Guard, which is a part of the navy in time of war. With Commander Towers on the flagship are Comany other man had to do with the building of the seaplanes, and Lieut. David twelve cylinders, thrust the heavily laden H. McCullough, a reserve man who was planes through the air with a force of called back from civilian life because of sixteen hundred horse-power. Even called back from civilian life because of his skill as a pilot. These two men are pilots. Lieutenant-Commander R. A. Lavender of the regulars, one of the most skilled wireless men of the navy, acts as radio operator on board, while the task of keeping the four great twelve the raising of fourteen tons of wood, willow engines in rood humor and syngers. The weight of the crew and provisions amounts to 1,000 pounds, according to the navy calculations, while the oil the task of keeping the four great twelve the raising of fourteen tons of wood, mander of the craft. Behind him, but metal, fabric and fuel, thousands of feet ylinder engines in good humor and syn- metal, fabric and fuel, thousands of feet still in front of the planes and the white

man on the flight, and, so his crew agree his engines twice dropped him on to the surface of the ocean miles out at sea he got his ship to Trepassey notwithstand-ing, and got there with his appetite for Then at 7:32 P. M. (Newfoundland the big flight merely whetted by acci-

#### Added Man in Each Crew.

With Lieut, Patrick N. L. Bellinger and his smile—for his smile is at least as noted us is he himself—on the duli colored NC-1 are Lieut.-Commander M. A. Mitscher of the Resulars and Lieut.
L. T. Barin of the Reserve pilots, Lieut. Machinist R. Christensen, both of the

exploit he performed when the United States was knocking at Vera Cruz, the front door to Mexico. The Lieuts. Rhodes and Breese, and Machin-NC-1, some seven minutes after the lat Christensen. On the trip north from Four had left her alone on the water rose without fuss in a businesslike ers found these men worth their weight way, as a veteran would.

The planes all hopped off the water could be paid on a transutlantic flight.

tone. So, too, it was during the equally harassing days of planning the flight at Washington, when the planes-except The Four and Three took the the NC-1—never had taken the water. It the wings and the One followed Praise of Commander Towers is promature at this stage of the game, but it should be pointed out that he set the date of the start of the flight at May 14 some two or three months ago, and It seemed to those on shore that has been compelled by all the vicissi-nice clear of the surrounding land the lanes speeded up a bit as if relieved in the course of construction, trying out the propellers corkscrewing through the and actual flight to postpone it only two air that when tilted slightly upward.

> More Than 1,700 Gallons of Fuel When the seaplanes took off to-day weighed approximately 28,200 pounds.
> Of this the planes themselves weighed
> 15,100 pounds, so that the gasolene, supplies, men and oil aboard weighed 13,100
> pounds. The crew and provisions pounds. The crew and provisions weighed about 1,200 pounds, the oil about 900 and the gasolene somewhere between 10,000 and 11,000 pounds, from 1,700 to 1,800 gallons,

The first hour of flying, with the fou engines turning over at their fastest will burn up 650 pounds of gasolene. Thereafter the amount will diminish steadily as the gradual lightening of steadily as the gradual lightening of its fuel the machine by the burning of its fuel will do away with the strain on the engines. It is planned to shut off one eliker side of these two, a single on either side of these two, a single on vibrating disk of the telemetry of the disphragm or vibrating disk of the telemetry of the disphragm or vibrating disk of the telemetry of the disphragm or vibrating disk of the telemetry of the disphragm or vibrating disk of the telemetry of the disphragm or vibrating disk of the telemetry of the disphragm or vibrating disk of the telemetry of the disphragm or vibrating disk of the telemetry of the disphragm or vibrating disk of the telemetry of the disphragm or vibrating disk of the telemetry of the disphragm will be throttled down to idling speed and

#### First Three Hours Crucial.

It is known that the part of the flight which Commander Towers regards as crucial is the first two or three hours in the air. In those hours the engines, under their greatest strain, will not be warmed to their best efficiency; fog and harrying winds around the banks may be encountered, and any defect of plane or engine is likely to make itself felt. Once through the first hours of flying in the frigid air above the ice studded waters around Newfoundland, Commander Towers will enter the night with great confidence, for in his opinion the worst of the journey will be past.

It will rest upon his shoulders principally to navigate surely and steadily during the nineteen hour flight toward the tiny island of Corvo, a small mark at 1,200 miles distance. The infrequent links of the chain of destroyers will aid him to be sure with their searchlights. flares and illuminations, but there is danger of a link out of place, a sudden shift of the wind, which over a black, invisible ocean cannot be detected, with the result that the planes might shoot off their course and waste precious gasolene on a false direction.

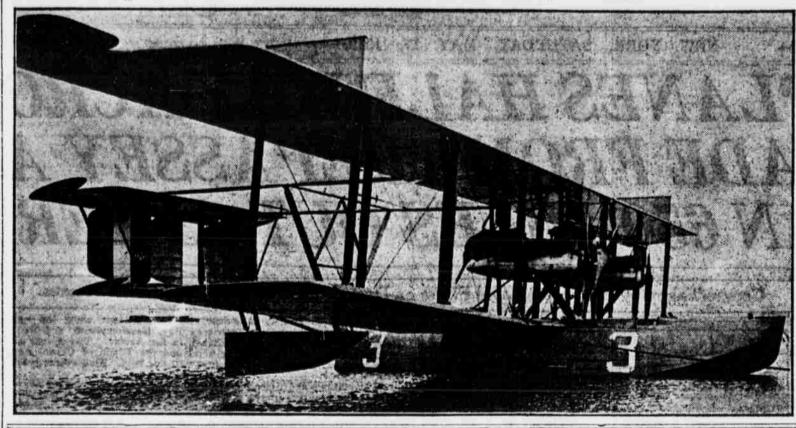
If one plane goes down in such shape that the aviators are in imminent peril of their lives one of the other planes will stop, but otherwise the work of rescue will be left to the destroyers, for the orders are to make the Azores, and politeness is taboo.

Most Powerful Planes in World. While not the largest the NC flying boats are the most powerful airplanes in existence at the present time. Their four great Liberty motors, each of

porations are invited with confidence that complete

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## NC-3, Flagship of Seaplanes, in Which Commander Towers Flies



into the air, and the propulsion of this heavy, air impeded matter horizontally at more than mile a minute speed for U. S. Fliers Make 457

hours at a time. The huge wings of the craft are the principal means of sustaining flight. These wings, twelve feet wide, stretch from tip to tip a distance of 126 feet days a record in the uncertain science as it is with the machine in flight, it of aviation, as all connected with it rides over rather than glides through the air. The lower wing, too, ninety-four feet from end to end and of the same width as the upper, is a lesser but just as necessary supporting surface. Be-tween them is a gap of fourteen feet in the centre and twelve feet at the tips. They are bound together by struts or supports of a peculiar oval shape, so formed that they pass through the wind with the least possible resistance, and by wires slender but many times ronger than their size would indicate.

#### Details of the Machine.

Between the two wings, perched on ere struts, are the four motors, a tanarrangement of the centre two, with the forward engine driving a trac-tor or pulling propellor and the motor

this time they will be burning only 360 the tall, its elevators and rudders alpounds of gasolene each hour.

Three Hours Crucial. of the huge upper wing, however, the planes making up the guiding surfaces seem punny and feeble things to guide the huge flying boat. The tail is raised high above the surface of the water, for the leaping waves would rip its var-nished fabric to tatters if it was within their reach. From the rear end of the rudder to the front of the hull is a matter of sixty-eight feet and-again the painstaking accuracy with which the constructors planned her is shown in the odd lengths—three and one-half inches. Empty of fuel and of men the flying boat, with its powerful wireless installation and the complicated navigating instruments necessary in the new science of aerial navigation, weighs 15,100 pounds. Entirely loaded, the flying boat. of aerial navigation, weighs 15,100 pounds. Entirely loaded, the flying boat weighs 28,500. Thus, of her gross or total load there is available 13,400 pounds for fuel, men, food and the like. This 13,400 pounds is termed her useful load and it is the largest useful load man has ever raised without ropes or earth-hating hydrogen from the face

> The 13,400 pound load is divided among crew, fuel, oil, water and sup-plies. The flying boat has in her hull nine tanks of gasolene, each with a ca-pacity of 200 gallons. In the upper wing is another, smaller tank, holding ninety gallons for use in case of emer--in case head winds exhaust gas olene without winning mileage, or a tank leaks, or the flying boat strays from its course and files miles out of its way These tanks hold a total of 1,890 gallor which weigh approximately 11.340 pounds. This leaves a little more than crew, oil, water to cool the engines, food and spare parts for the engines.

## How the Crew Is Placed.

The weight of the crew and provisions amounts to 1,000 pounds, according to

facilities Necessary?

The New York Trust Company

FIFTH AVENUE OFFICE

5th Avenue and 57th Street

The accounts of individu-

als, banks, firms and cor-

## Loops in 114 Minutes

WASHINGTON, May 16 .-Making 457 consecutive loops during a flight lasting one hour and 54 minutes, Lieuts. Ralph J. Johnson and Mark R. Woodward set a new world's record to-day at Carlstrom Field, Arcadia, Fla.

The making of the new record was announced by air service of-ficers here, who said a Lapere two seated fighting plane was used.

ring propellers, sit the two pilots, side by side. In the rear, behind the pusher propeller, is the compartment occupied any time during the voyage a man may ers were used, as the seaplanes were stretch out at length within the hull, shielded from wind and cold alike. All the members of the crew are connected to represent the members of the crew are connected. Newfoundland and the Azores—where painstakingly accurate dimensions made public by its naval constructors.

Stretching out behind, connected strongly with upper wing and hull, is the tail, its elevators and rudders altered and space are worked out, the stools upon which the radio man and engineer weighing five pounds each, have sit, weighing five pounds each, have stored within them the small hand tools required for emergency work.

84 knots lightly loaded. Eighty-four knots, it should be stated, for purposes of comparison with land machines is radius is reckoned, of course, on the assumption that neither favoring nor retarding wind is blowing. The gasolene consumption at this cruising speed about 650 pounds per hour. If this consumption was constant it would not be possible for the NC boats to reach the Azores without stopping for fuel, but it is proposed to let one and then two of the motors go idle after the load has been diminished after some hours of been diminished after some hours of burning gasolene. ast hour, when the machine will be

## Windmills Pump the Oil.

The pumps forcing the gusolene up to a ton for the five or six men of the placed in the blast of the great driving trouble she will call 'he nearest destroye propellers. They are in duplicate, and in addition there is a hand operated pump for emergencies. Electric current is generated by the same small wind-

ders, 69 square feet.

The flying control is of the dual conside seating. Either pilot may take con troi at will without changing his seat.

## Weight Saving Important.

is of Western spruce, strong yet light. The metal wing fittings and structural fittings in general are of chrome vanadium steel of an ultimate strength of 150,000 pounds per square inch. All flying, landing and control wires are of for any st standard woven airplane cord wire. The wing covering is linen treated with the ordinary airplane fabric "dopes" or var-All wires, struts and the aluminum cowling about the engines are streamlined to prevent resistance to the air. The main keels of the boat hulls are of oak, although the hull structure general is of spruce.
Access to any portion of the boat is

by means of swing passages. The en-gines may, of course, be reached and ad-justed while the ship is in the air. In order to avoid strain upon the pilot al control surfaces, such as allerons, rud ders and elevators are balanced by portion of the area forward of the piv eting points in order to make them mov

## SMOKE AND LIGHT MARK THE COURSE

between the destroyers during the flight

Each destroyer has displayed on its

Commander Towers looking down upon the number 16 knows even if the wire-less of his plane is out of order that he is over the destroyer Hopewell, sta-

If while off station a destroyer sights any plane, whether known to be engaged

in the transatiantic flight or not, it is

ordered to signal to the plane the duty

to the next vessel on station. All ships in the vicinity are instructed to proceed with all possible speed in answer to S O S calls from scaplanes and make

every effort to assist in repairs neces-

sary to continue the flight. In the event

ceed and conditions make towing it back to the base hazardous or impos-sible the destroyer is instructed to res-cue the crew and to salvage the en-

No Long Stope to Be Made.

As soon as the seaplanes started word

was flashed to the battleship Arkansas.

at Plymouth, England, to proceed to her station south and west of the British

Isles, where she will gather meteorolog-

ical data for the flight to Lisbon, Portu-gal, and to Plymouth, England.

regarded by Commander Towers and his associates purely in the light of experi-mental flights and not as part of the

transatiantic flight. As much speed as can possibly be made, with as few and as short stops as possible, will be made

The planes, according to the plans made last month, will fly at a height of from one to two thousand feet, but may

rise to 5,000 feet if air currents at that height are heading toward the Azorea. At a height of one mile a seaplane, even

until the planes reach Lisbon.

to so to reach the Azores.

Continued from Pirst Page

sweep up from any quarter upon the seaplanes without warning five or six hours and probably much longer. For hours and probably much longer. For the weather along the route itself the destroyers are relied upon to furnish information. Not only is the smooth-ness of the air necessary for the flight, but also a smooth sea. The light hulls of the seaplanes are strongly con-structed, but they could not withstand the battering of the Atlantic in the the battering of the Atlantic in storm for a considerable time without leak

On the first two legs of the flightcoast to Trepassey, only eight destroy-

Waters.
In addition to these four destroyers are stationed among the Azores from the island of Flores, where the planes will make their first stop unless their commanders feel they can proceed with-out difficulty direct to Ponta Delgada, on The speed of the ship in nautical miles—for the planes are commissioned as regular ships in the United States
Navy and are navigated strictly as a surface vessel—is 79 knots, fully loaded, and

the island of San Miguel, 150 nautical miles further on. These destroyers are the Harding, Gridley, Fairfax and Mahan. The final legs of the journey, from Ponta Deigada to Lisbon and from Lisbon to Plymouth, are also patrolled by destroy-Plymouth, are also patrolled by destroyers, fourteen being on the former, a dis-tance of 800 nautical miles, and five on

asolene used per hour will fall from 650 one of these station ships is passed word is immediately wirelessed to the next ship eastward. They are all on the alert for the wireless calls of the scaplanes, the glare of their Aldis searchlights, the oar of their engines or the flash Very signal. If a plane lands in the he level of the four motors are wind green star as a sign that she can get of driven by small wooden propellers again without assistance. If she is it

in addition there is a hand operated pump for emergencies. Electric current is generated by the same small wind-mills and is stored in batteries until used for operating the wireless, electric lighting system within the hull, lights for night landing, and wing and tail lights much like those of an automobile. This simple system provides "Julce" for the wireless set which is capable of sending a distance of 300 miles when the NC boat is in the air, permitting the use of a long trailing aerial, and of 156 miles when on the water, when an aerial above the upper wing is used.

Complete sets of instruments, including air speed indicators, altimeters, compasses, gasolene and oil gauges, &c., are provided for every member of the crew. The navigator has also the usual and some special navigating instruments.

The area of the wings is 2,380 square feet; of the allerons, planes located at the outer rear end of the top wings, which by their movements prevent the plane from tipping to one side or the other and aid in banking in going around turms, 265 square feet; of the elevators, 2401 square feet; of the elevators, 2401 square feet; of the dual control is of the dual control is of the dual control.

The flying control is of the dual control and addition and firing star shells to recall the NCs to the straight and narrow path.

When a destroyer receives word from a maximal station to the west stabilizers and in permitting the received that the other receives are instructed in the navigators of the flying planes will be able to calculate how the wind is affecting that the navigators of the flying planes will be able to calculate how the wind is affecting the received that the others will not push in the large and trailed directly into the wind so that the navigators of the flying planes will be able to calculate how the will be able to calculate how the will be able to calculate how the will be affecting the receives at the seaplane from their three links will be fired to the north as an addition and to the planes. If the

The flying control is of the dual control of t pass directly toward the next destroyer. This permits the navigator of the seaplane to verify his calculations of dis-In every possible way effort is made tance, drift of the ship away from the course, compass error due to the metal of Western spruce strong yet light radio direction finder, the principal reliance of the navigator, will thus be supplemented by the lane of signalling

During the flight signal or radio calls for any ship on a station are by the number of the station and not by the sual ship call letters between the planes and destroyers and



aviation oil, spare parts and supplies, is waiting. If the leader thinks his men and seaplanes can stand the strain of an additional 150 nautical miles after their additional 150 nautical miles after their twenty-four hour trip he will proceed to Punta Delgada, where the Meiville, with 6,300 gallons of gas and 500 gallons of oil, is waiting. Mechanics who know the intricacles of the NC craft will be waiting to go over the planes and groom them for the 800 mile jump to the coast of Portugal. At Lisbon the Shawmut, also laden with fuel and supplies, is waiting. plies, is waiting. EXPECTED AT AZORES

# AT 1 O'CLOCK TO-DAY

Destroyers Relay News of the Passing Fliers.

WASHINOTON, May 16.—An official report from Trepassey Bay, received tonight, said weather conditions along the
scapiane route were good when the start
was made and if the winds then prevailing continued the airships should reach
the Asores in nineteen hours or about
1 P. M. to-morrow, Washington time.
Immediately on receipt of the official
despatches announcing that the scapianes
were on their way at last for Europe the were on their way at last for Europe the Navy Department sent broadcast to all ships at sea and to the radio towers of Europe the fact that the aircraft had

taken wing.

The effect of a flash sent over the whole Atlantic Ocean by the Navy Department announcing that the flight had started was expected to be that radio operators ashore and affoat would be keyed to a high pitch and make every possible effort to obtain and forward any information as to the progress of the flight. This makes it possible that reports will reach the Department from wholly unexpected sources, telling of the flight across the Atlantic as the planes

flight across the Atlantic as the planes proceed.

Prompily on the start, also, announcement went by radio along the lane the fliers were to follow, leaping from destroyer to destroyer yadio all the way to the Azores. Twenty-five ships heard it and flashed it along the line. In an hour and forty-five minutes it had been relayed clear to Ponta Delgada, Asores, probable landing place of the planes early to-morrow afternoon. There the message was committed to the cables and it took more than two hours to bring it to the naval communications office in deck the number of its station in letters large enough to be seen by day or by night from a height of 2,000 feet. The numbers are about eight feet high, black on a white background during the day and are illuminated at night. Thus It to the naval communications office in the Navy Department. The line of de-streyers had been tested as well as warned however, and found intact, each tioned in latitude 41 degrees 19 min-utes north, longitude 36 degrees 714 minutes west, and that he has 300 miles ship waiting to do its full share to make successful the great enterprise of the

The test of the destroyers and cable loop served also to show the difficulty of quick report under which the department labored. The speed with which the twen ty-four destroyers passed the word along to the Melville, the seaplane tender Punta Deiga Bay, was all that could be desired. But the cable was slow. The department made efforts to expedite its report along this link of the chain lean warships are in the Tagus River, while a supplemental radio relay had and a meteorological mission daily is been arranged for; it was certain to be studying atmospheric conditions from slow at best, and the Azores cable was the main reliance for keeping in touch with the destroyers and the speeding gines. Instruments and other parts of planes.

The despatch to the Navy Depart

ment by the Ward reporting the plane's position was sent to the U. S. S. Prairie it reached Washington by cable and tel-egraph. The means of sending the mes-sage back indicated that the U. S. S. Aroostook already had left Trepassey. and that the destroyer line behind the There will be no stops of long dura-tion during the trip from Newfoundland to continental Europe. The 1,000 mile trip up the coast of North America was

ing up.

A delayed message over the same route said the planes had passed sta-tion ship No. 3 at \$:03 P. M., flying with twelve minutes difference beween passing of the first and the last of trio. The NC-1 was leading at that

#### LANDING SPOT READY IN AZORES HARBOR

Supply Boats Also Stationed at Convenient Points.

By the Associated Press. from a destroyer than twenty-five miles, the midway distance between two of the Final preparations were made to-night station ships, this gliding ability may be of great use in the event of a forced landing on a rough sea.

On sighting the tiny island of Corvo

On sighting the tiny island of Corvo

THE GOLDEN MEAN Dietitians generally agree that an all-meat diet is harmful to the human system.

They are equally unanimous in the opinion that an allvegetable diet is inadequate.

The best results in health and vigor are obtained by the avoidance of either extreme.

The golden mean is found in the judicious combination of meat and vegetables.

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lorvo, which is 175 miles west of Ponts Deigada. Supply boats have been s tioned at Corvo and also at Horta. sary. Two American destroyers are being held here in readiness to go to the assistance of the aviators if they are unable to find the harbor and are compelled to alight on the open sea. All the de

are in position.

Intense interest in the flight is being manifested here, hundreds of persons crowding the waterfront daily awaiting

#### LISBON AWAITS PLANES. U. S. Warships and Weather

Sharp There Already. By the Associated Press.

LISBON, Portugal, May 16 .- Lisbon to all prepared for the arrival of the American transatiantic seaplanes. Two Amerstudying atmospheric conditions from

#### PLAN FIGHT ON BOLL WEEVIL

for a Year Made in Florida. TALLAHASSEE, May 16 .- Prevention of

cotton growing for a year to eradicate the boll weevil, which causes \$100.000,-000 damage annually, is proposed by Representative Eli Futon, who to-day introduced a concurrent resolution in the

Introduced a concurrent resolution in the Florida House of Representatives.

The resolution provides that the Federal Secretary of Agriculture he requested to recommend to Congress and Legislatures of cotton growing States the enactment of legislation to carry out the plans for a sabbatical year for the cotton growing industry. The plan is said to be widely indersed. said to be widely indersed

Washington, May 16.—Department of Agriculture officials to-day appeared inclined to believe the proposal put for-ward in the Florida Legislature to eliminate the boll weevil was impracticable

## ALLIES OWE U. S. 9 BILLIONS.

Britain Gets \$80,000,000, Belgium

WASHINGTON, May 16 .- The Treas credits in favor of Great Britain of \$80-000,000, making a total for Great Britain Commander Towers may order his planes to stop at the port of Horta, on the island of Flores, where the Columbia, with 1,000 gallons of aviation.

If the seaplanes follow the scheduled Total credits to all Ailles now are gasolene and seventy-five gallons of course they will first sight land at \$9,370,219,000



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